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EXAMINER

GARG, YOGESH C

ART UNIT PAPER NUMBER

3625

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/615,025

Applicant(s)

KLEIN ET AL.

Examiner

Yogesh C Garg

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 8/11/3 & 12/5/3.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Amendment B and Response, paper numbers 4 and 6, received on 8/11/2003 and 12/09/2003 respectively are entered. Claim 10 is cancelled. Claims 1, 8, 9, 26 and 27 are amended and new claims 28-50 are added. Currently claims 1-9, 11-50 are pending for examination.

### ***Response to Arguments***

2. With reference to the amendment to claim 1 and adding new limitations to it and remarks presented on page 13 of the amendment, rejection of claims 1-23 and 26-27 under 35 U.S.C. 101 for lacking practical application is withdrawn.

The applicant's arguments, see pages of the Response received on 12/09/2003, with regards to rejection of claims 1-23 and 26-27 under 35 U.S.C. 101 for lacking technology, have been fully considered but are not persuasive and therefore, rejection is still maintained.

The applicant's arguments (see amendment on pages 14-19) filed on 8/11/2003 with reference to rejection of claims 1, 3, 4, 7-9, 11-13, 16-18, 20, 24, 25, 26 and 27 under 35 U.S.C. 103 (a) over Bekaert in view of Barrons and further in view of Official Notice have been fully considered but are not persuasive. The applicant has argued that neither Bekaert nor Barrons disclose sectorization. In response, the examiner would like to inform that on page 7 in the previous Office action, he did acknowledge that Bekaert in view of Barrons does not disclose grouping said plural different assets into plural different sectors based on similarities of said

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measures of tendency to change on and therefore took Official Notice of the concept and benefits of grouping said plural different assets into plural different sectors based on similarities of said measures of tendency to change. The applicant, with regards to the Official Notice has demanded citation of references as evidence for classifying companies depending upon the total value of assets, geographical location, volatility characteristics like Beta. In response, the examiner attaches the following for evidence:

"Small Cap"; "Barrons Dictionary of Finance and Investment"; copyright, 1995 by Barron's Educational Series, Inc., Hauppauge, NY, page 538, hereinafter, referred to as Barrons B, which describes that stocks of the companies are classified/grouped into different sectors such as "small cap", "mid-cap", and "large cap" based upon their market capitalization.

"Beta", Barrons Dictionary of Finance and Investment"; copyright, 1995 by Barron's Educational Series, Inc., Hauppauge, NY, page 47, hereinafter, referred to as Barrons C, which describes that stocks of the companies are classified/grouped as per different Beta values, wherein the Beta value is the measure of the volatility of the stock of a company with the rest of the stock market. Stocks of companies having higher beta than one are classified into the sector more volatile than the market and stocks having lower beta than one are classified into the sector less volatile than the market.

As regards to an evidence for classifying stocks of companies in sectors on the basis of geographical locations, the applicant's attention is invited to the mutual funds, which are classified on the basis of their geographical locations, such as Japan fund, European fund, Latin American fund, India fund, etc. and this practice has been existing much before the applicant's invention and notoriously well-known.

The applicant further argues on pages 17-18 that there is no motivation to combine Bekaert, Barrons and Official Notice. The examiner respectfully disagrees because of the following reasons:

Barrons discloses regression analysis which is notoriously well-known statistical technique used in the field of stock market analysis and risk return analysis. In view of Barrons, it would be obvious for an ordinary skilled in the art to incorporate this feature with Beakert's financial advisory system of determining projected future value of assets based on the economic/exogenous factors because Barrons' regression analysis is used in the field of stock market analysis and risk return analysis in optimizing portfolios, as explicitly disclosed in the Barrons. Note: Bekaert also uses historical analysis in determining pricing data (see at least col.4, lines 60-65). Similarly, it would be obvious to a person of an ordinary skill in the art at the time of the applicant's invention to incorporate the teachings of the Official notice of grouping the different assets into a plurality of different sectors based on similarities like total value of assets, geographical locations, volatility characteristics like Beta, and so on so that a person of an ordinary skill in the art at the time of the invention can classify assets based upon the regression coefficients which measure the tendency to change of an asset value with respect to exogenous variables, such as inflation, interest rate or economic growth rate, movement of stock markets and be able to estimate the movement of the asset values in that group.

The applicant's arguments (see amendment on page19) filed on 8/11/2003 with reference to rejection of claims 5,6,19, 21 to 23 on the basis of reference Phillips have been fully considered and found persuasive but are moot in view of new grounds of rejection.

This is a non-final rejection.

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-9, 11-23 and 26-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**3.1. Claimed Invention(s) does not fall within the Technological Art.**

As an initial matter, the United States Constitution under Art. I, §8, cl. 8 gave Congress the power to "[p]romote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries". In carrying out this power, Congress authorized under 35 U.S.C. §101 a grant of a patent to "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition or matter, or any new and useful improvement thereof." Therefore, a fundamental premise is that a patent is a statutorily created vehicle for Congress to confer an exclusive right to the inventors for "inventions" that promote the progress of "science and the useful arts". The phrase "technological arts" has been created and used by the courts to offer another view of the term "useful arts". See *In re Musgrave*, 167 USPQ (BNA) 280 (CCPA 1970). Hence, the first test of whether an invention is eligible for a patent is to determine if the invention is within the "technological arts".

Further, despite the express language of §101, several judicially created exceptions have been established to exclude certain subject matter as being patentable subject matter covered by §101. These exceptions include "laws of nature", "natural phenomena", and "abstract ideas". See *Diamond v. Diehr*, 450, U.S. 175, 185, 209 USPQ (BNA) 1, 7 (1981). However, courts have found that even if an invention incorporates abstract ideas, such as

mathematical algorithms, the invention may nevertheless be statutory subject matter if the invention as a whole produces a "useful, concrete and tangible result." See *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F.3d 1368, 1973, 47 USPQ2d (BNA) 1596 (Fed. Cir. 1998).

This "two prong" test was evident when the Court of Customs and Patent Appeals (CCPA) decided an appeal from the Board of Patent Appeals and Interferences (BPAI). See *In re Toma*, 197 USPQ (BNA) 852 (CCPA 1978). In *Toma*, the court held that the recited mathematical algorithm did not render the claim as a whole non-statutory using the Freeman-Walter-Abele test as applied to *Gottschalk v. Benson*, 409 U.S. 63, 175 USPQ (BNA) 673 (1972). Additionally, the court decided separately on the issue of the "technological arts". The court developed a "technological arts" analysis:

The "technological" or "useful" arts inquiry must focus on whether the claimed subject matter...is statutory, not on whether the product of the claimed subject matter...is statutory, not on whether the prior art which the claimed subject matter purports to replace...is statutory, and not on whether the claimed subject matter is presently perceived to be an improvement over the prior art, e.g., whether it "enhances" the operation of a machine. In *re Toma* at 857.

In *Toma*, the claimed invention was a computer program for translating a source human language (e.g., Russian) into a target human language (e.g., English). The court found that the claimed computer implemented process was within the "technological art" because the claimed invention was an operation being performed by a computer within a computer.

The decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* never addressed this prong of the test. In *State Street Bank & Trust Co.*, the court found that the "mathematical exception" using the Freeman-Walter-Abele test has little, if any, application to determining the presence of statutory subject matter but rather, statutory subject matter should be based on whether the operation produces a "useful, concrete and tangible result". See *State*

Street Bank & Trust Co. at 1374. Furthermore, the court found that there was no "business method exception" since the court decisions that purported to create such exceptions were based on novelty or lack of enablement issues and not on statutory grounds. Therefore, the court held that "[w]hether the patent's claims are too broad to be patentable is not to be judged under §101, but rather under §§102, 103 and 112." See *State Street Bank & Trust Co.* at 1377. Both of these analysis goes towards whether the claimed invention is non-statutory because of the presence of an abstract idea. Indeed, *State Street* abolished the Freeman-Walter-Abele test used in *Toma*. However, *State Street* never addressed the second part of the analysis, i.e., the "technological arts" test established in *Toma* because the invention in *State Street* (i.e., a computerized system for determining the year-end income, expense, and capital gain or loss for the portfolio) was already determined to be within the technological arts under the *Toma* test. This dichotomy has been recently acknowledged by the Board of Patent Appeals and Interferences (BPAI) in affirming a §101 rejection finding the claimed invention to be non-statutory. See *Ex parte Bowman*, 61 USPQ2d (BNA) 1669 (BdPatApp&Int 2001).

In the present application, Claims 1-23 and 26-27 have no connection to the technological arts. None of the steps indicate any connection to a computer or technology. The step of calculating, grouping, assessing statistics based on some acquired data, comparison, purchasing or selling could be performed manually by people. Therefore, the claims are directed towards non-statutory subject matter. To overcome this rejection the Examiner recommends that Applicant amend the claims to better clarify which of the steps are being performed within the technological arts, such as incorporating/integrating a computer/software/hardware computer network or electronic network functionally with manipulative steps recited in the claims.



***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4.1. Claims 1, 3, 4, 7-9, 11-13, 16-18, 20, 24-27, 29-30, 33-38, 41-43, 45, and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekaert et al. (US Patent 6,125,355), hereinafter, referred to as Bekaert, in view of Rebane (US Patent 6,078,904), in view of "Regression analysis"; "Barrons Dictionary of Finance and Investment"; copyright, 1995 by Barron's Educational Series, Inc., Hauppauge, NY, pages 470-471, hereinafter, referred to as Barrons, and further being obvious in view of Official Notice.

With regards to claims 1, 3, 4, 7-9, 11-13, 16-18, 20, 24-27, 29-30, 33-38, 41-43, 45, and 49-50, Bekaert teaches a method, an apparatus and a computer-readable medium respectively, for classifying assets into business sectors, said method comprising: (a) processing historical data for value of the asset and historical data values for said plural exogenous variables to obtain a price formula for estimating the value of the asset as a function of the exogenous variables and repeating step for each of plural different assets, wherein each of plural different assets comprises a share of stock/bond, comprises performing a statistical regression technique, calculating a representative characteristic, such as weighted average return, of assets in a specific sector and comparing it to the representative characteristic of assets in said specific sector, (see at least ; col.1, lines 9-20, lines 59-63,

col.2, lines 29-47, col.3, lines 3-46, col.4, line 14-col.5, line 46, col.11, lines 3-6, col.12, line 59-col.14, line 19).

Bekaert further discloses assessing at least one of (1) how statistics for at least one of the groups formed in step (c) of claim 1 vary over time; and (ii) how one asset in a group formed in step (c) compares to other assets in the same group (see col.4, line 15-col.5, line 21, “ *The simulation module provides input to a portfolio optimization module that determines one or ore optimal portfolios .....In one embodiment, pricing module 110 generates pricing data for three assets.....Alternatively, the core assets may be different types of assets, such as US equities and bonds.....By generating a number of scenarios with pricing module 110, financial advisory system 10m generates statistics for different projected asset valuations.....* ” . Note: Bekaert using the various inputs from exogenous variables generates statistics for different assets belonging to different groups like equities and bonds and then compares them to arrive at an optimized group/portfolio ).

Bekaert does not disclose purchasing or selling an asset based on the assessment made. However, in the field of same endeavor, Rebane teaches purchasing or selling an asset based on the assessments made (see at least col.11, lines 21-25, “ *The account management module 310 also provides for individual trades in the investor’s accounts, and transfers the list of current buy/sell order to the investor’s investment account for execution* ”). In view of Rebane, it would have been obvious to a person of an ordinary skill in the art at the time of the applicant’s invention to have modified Bekaert to incorporate the Rebane’s feature of purchasing or selling an asset based on the assessment made because it would enable the users, in Bekaert, to executing and implement the recommendations to acquire/maintain an optimized portfolio.

Bekaert/Rebane fails to disclose calculating, for each of plural exogenous variables, plural samples of a measure of a tendency for a value of an asset to change as a result of a change in a data value for said each exogenous variable by; and taking a derivative of the price formula to obtain a formula expressing said tendency to change. However, Barrons (pages 470-471) teaches the use of regression analysis, regression coefficients; coefficient of determination and correlation coefficient to establish a relationship of a dependent variable, such as the value of asset in the instant application and one or more independent variables, such as exogenous variables in the instant application, by using historical data for both dependent and independent variables and determine/estimate the change in value of the dependent variable, such as the value of asset in the instant application for a change in the value of the independent variable, such as exogenous variables in the present application. In a given regression model the correlation coefficient is the derivative to determine the measure of the tendency of the dependent variable, such as the value of an asset in the instant application, to change with respect to a change in the independent variable, such as exogenous variables in the instant application.

In view of the old and well-known concepts and benefits of regression analysis, regression coefficients; coefficient of determination and correlation coefficient in analyzing the changes of dependent variables in the field of securities as explicitly stated in Barrons, it would have been obvious to a person of an ordinary skill in the art at the time of the invention have modified Bekaert/Rebane to combine the concept of establishing a relationship of a dependent variable, such as the value of asset in the instant application and one or more independent variables, such as exogenous variables in the instant application, by using historical data for both dependent and independent variables with Bekaert/Rebane because

such statistical techniques will help the users to determine/estimate the changes and movements in the value of the stocks/bonds with respect to changes in the values of inflation rate, interest rate, economic growth factors, stock market analysis and risk return analysis in optimizing portfolios, as explicitly disclosed in the Barrons. Note: Bekaert/Rebane also uses historical analysis in determining pricing data (see at least Bekaert, col.4, lines 60-65).

Bekaert/Rebane/Barrons fails to teach the step of grouping said plural different assets into plural different sectors based on similarities of said measures of tendency to change. Official Notice is taken of both the concept and benefits of grouping stocks/securities/assets into sectors based upon similarities, such as putting shares of chemical companies in chemical sector, financial companies in financial sector, computer related companies in computer and technology group. Similarly companies are also classified depending upon their total value of assets (stocks of the companies are classified/grouped into different sectors such as "small cap", "mid-cap", and "large cap" based upon their market capitalization), geographical locations (the applicant's attention is invited to the mutual funds, which are classified on the basis of their geographical locations, such as Japan fund, European fund, Latin American fund, India fund, etc.), volatility characteristics like Beta (stocks of the companies are classified/grouped as per different Beta values, wherein the Beta value is the measure of the volatility of the stock of a company with the rest of the stock market. Stocks of companies having higher beta than one are classified into the sector more volatile than the market and stocks having lower beta than one are classified into the sector less volatile than the market. ) and so on. In view of the Official Notice, it would be obvious to a person of an ordinary skill in the art at the time of the applicant's invention to have modified Bekaert/Rebane/Barrons to incorporate the teachings of the Official notice of grouping the different assets into a plurality of different sectors based on

similarities like total value of assets, geographical locations, volatility characteristics like Beta, and so on so that a person of an ordinary skill in the art at the time of the invention can classify assets based upon the regression coefficients which measure the tendency to change of an asset value with respect to exogenous variables, such as inflation, interest rate or economic growth rate, movement of stock markets and be able to estimate the movement of the asset values in that group.

4.2. Claims 2 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekaert/Barrons/Official Notice and further being obvious in view of Official Notice.

With regards to claim 2, Bekaert/Rebane/Barrons/Official Notice teaches a method for classifying assets into business sectors as disclosed and analyzed above in claims 1 and 25. Bekaert/Rebane/Barrons/Official Notice fails to disclose that the measure of tendency to change comprises a measure of elasticity. Official Notice is taken of the concept and benefits of the correlation coefficients of a multiple linear regression technique as the regression coefficients represent the elasticity of a dependent variable, such as asset value, with respect to a change in the independent variable such as inflation, economic growth, interest rate. Further, it is also old and well-known fact that if a dependent variable is a product of independent variables (like in a Cobb Douglass function), the exponents of the independent variables represent the elasticity of the dependent variable with respect to changes in the independent variable. Also regression coefficients of a log-transformed function would represent elasticity measures. Therefore, in view of the Official Notice, it would have been obvious to a person of an ordinary skill in the art at the time of the invention to combine the steps of calculating regression coefficients of a multiple linear regression function or a log-transformed regression function with

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Bekaert/Rebane/Barrons/Official Notice because this combination would enable the users/financial advisers to learn the sensitivity of the dependent variables with respect to the changes in the independent variables.

4.3.. Claims 5, 23, 31 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekaert/Rebane/Barrons/Official Notice

With regards to claims 5, 23, 31 and 48, Bekaert/Rebane/Barrons/Official Notice teaches a method and a computer readable medium for classifying assets into business sectors as disclosed and analyzed above in claims 1 and 25 above. Bekaert/Rebane/Barrons/Official Notice fails to disclose (a) that the price formula is expressed as a truncated Taylor series expansion, (b) and use of genetic algorithm to obtain the price formula. However, Rebane, in the same field of estimating predicted values assets by determining risk tolerance function, and allocating them in a portfolio having a plurality of investments, teaches (a) that the price formula is expressed as a truncated Taylor series expansion ( see at least, col..7, lines 19-32, "*The solution to (13) may be usefully approximated by a truncated Taylor series expansion of  $g(A)$ , the investor's risk tolerance function, about the expected value of  $h(A)$ . . . . . , col.23, line 64-col.24, line 27, "Real world (i.e. 'sane') RTFs are appropriately smooth allowing us to closely approximate the function with a truncated Taylor series in the proximity of the mean " , col.35, lines 50-54, and col.24, lines 35-54, " For non-convex portfolios the solution to (23) may be achieved through one of a number of evolutionary algorithms such as those of the genetic variety [20]. Unfortunately the resulting solution then is merely satisficing and has no guarantee of global optimality. "). In view of Rebane it would have been obvious to a person of an ordinary skill in the art at the time of the applicant's invention to have modified Bekaert/Rebane/Barrons/Official Notice as applied to claims 1 and 25 to incorporate the*

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features of using truncated Taylor series expansion and genetic algorithm to obtain the price formulas because it will enable the system to provide approximation to the price.value of the assets and to design optimal portfolios as explicitly demonstrated in Rebane.

4.4 Claims 6 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekaert/Rebane/Barrons/Official Notice in view of Hyatt (US Patent 6,195,659 B1).

With regards to claims 6 and 32, Bekaert/Rebane/Barrons/Official Notice teaches a method and a computer readable medium for classifying assets into business sectors as disclosed and analyzed above in claims 1 and 25 above. Bekaert/Rebane/Barrons/Official Notice fails to disclose use of statistical clustering techniques in defining sectors by clusters . However, Hyatt, in the same field of using statistical techniques , teaches performing clustering techniques in grouping and defining different sectors( see at least, col..1, lines 6-28 " *This invention relates generally to multivariate statistical analysis and, more specifically, to clustering techniques used to analyze statistical data. .... Clustering is based on the reasonable assumption that things having similar attributes also have similar measured characteristics. .... A similar analysis may be used to categorize stocks traded in a stock market. The measured characteristics may include share price, price-to-earnings ratio, price volatility, and so forth. When various stocks are sampled and their characteristics are plotted on an n-dimensional grid, categories of stocks emerge from the resulting clustering of patterns of data points. Such categories may be used to identify candidate stocks for purchase or sale.* "). In view of Hyatt, it would have been obvious to a person of an ordinary skill in the art at the time of the applicant's invention to have modified Bekaert/Rebane/Barrons/Official Notice as applied to claims 1 and 25 to incorporate the features of using statistical clustering techniques in defining sectors by clusters, because it will enable the system to group the sectors having

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similar characteristics and thereby helping to identify stocks for purchase or sale as explicitly demonstrated in Hyatt.

4.5. Claims 14-15 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekaert/Rebane/Barrons/Official Notice and further in view of Official Notice.

With regards to claims 14-15, Bekaert/Rebane/Barrons/Official Notice teaches a method for classifying assets into business sectors as disclosed and analyzed above in claim 13. Bekaert/Rebane/Barrons/Official Notice fails to disclose the step of tracking positions of assets. Official Notice is taken of both the concept and benefits of old and well-known practice of tracking position of securities by the owners/manager of the securities so as to remain on the top of their performances of the securities. In view of the Official Notice, it would have been obvious to a person of an ordinary skill in the art at the time of the invention to combine the feature of tracking the position of assets because it will enable the owners/manager of the securities to take timely action, depending upon the advice/recommendations from an expert or by observing the performance. to either sell or buy a particular security with the objective of making profits and avoiding risks of losses.

4.6 Claims 19 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekaert/Rebane/Barrons/Official Notice in view of Martz(US Patent 5,986,673 B1).

With regards to claims 19 and 44, Bekaert/Rebane/Barrons/Official Notice teaches a method and a computer readable medium for classifying assets into business sectors as disclosed and analyzed above in claims 1 and 25 above. Bekaert/Rebane/Barrons/Official Notice fails to disclose use of samples from a region of multi-dimensional space defined by exogenous variables. However, Martz, in the same field of endeavor, teaches using samples



from a region of multi-dimensional space, (see at least, col.1, line 13-col.4 line 18 " *The rendering of multidimensional data is currently performed by the statistical techniques of cluster analysis and multidimensional scaling (MDS). .... Cluster analyses is an established method for the attribute based classification of objects. Its purpose is to organize large volumes of data into meaningful groups. An example of the data that might be used in cluster analysis is shown in FIG. 1....., if the user of the technique has so chosen, the data columns are given weights to deliberately control their outcome on the final analysis. To a stock analyst, the %SG&A to Sales number is an important indicator of efficiency, but it is not as valuable in assessing a company as the Sales for the prior 12 months. Thus, the investigator defines a set of weights for the columns. .... " ). In view of Martz, it would have been obvious to a person of an ordinary skill in the art at the time of the applicant's invention to have modified Bekaert/Rebane/Barrons/Official Notice as applied to claims 1 and 25 to incorporate the features of using samples from a region of multi-dimensional space of the exogenous variables, because it will enable the system to arrange the objects and characteristics of the multiple exogenous variables revealing complex multidimensional relationships between those variables to the human eye , as explicitly suggested in Martz.*

4.7 Claims 21-22 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekaert/Rebane/Barrons/Official Notice in view of Matsuba et al.(US Patent 5,255, 347), hereinafter, referred to as Matsuba.

With regards to claims 21-22 and 46-47, Bekaert/Rebane/Barrons/Official Notice teaches a method and a computer readable medium for classifying assets into business sectors as disclosed and analyzed above in claims 1 and 25 above.

Bekaert/Rebane/Barrons/Official Notice fails to use of neural networking to obtain price formula and calculating the measure of tendency of change in the output of price formulas with respect to change in exogenous variables. However, Matsuba, in the same field of endeavor, teaches use of neural networking to obtain price formula and calculating the measure of tendency of change in the output of price formulas with respect to change in exogenous variables, (see at least, col.12, lines 43-54, *"In order to show the effectiveness of the neural network system according to the present invention, long-term prediction of the stock price data will be dealt with as a typical example of the time series data. The reason why the prediction of stock price trend is selected is that the stock price appears to be a field requiring a new engineering approach, since its dynamics is not very definite and also exhibits complicated behavior due to many unspecified extrinsic factors, unlike the conventional process system. .... "*, and col.14, lines 19-40.). In view of Matsuba, it would have been obvious to a person of an ordinary skill in the art at the time of the applicant's invention to have modified Bekaert/Rebane/Barrons/Official Notice as applied to claims 1 and 25 to incorporate the features of using neural networking to obtain price formula and calculating the measure of tendency of change in the output of price formulas with respect to change in exogenous variables, because it will enable the system to help predicting the future asset price data, as explicitly suggested in Matsuba.

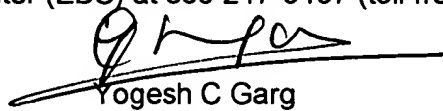
### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh C Garg whose telephone number is 703-306-0252. The examiner can normally be reached on M-F(8:30-4:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent A Millin can be reached on 703-308-1065. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Yogesh C Garg  
Examiner  
Art Unit 3625

YCG  
March 7, 2004